

What is claimed is:

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1. A capacitive sensor system comprising a substantially transparent sensor trace and a processor configured to detect a capacitance change in the sensor trace caused by the proximity of a conductive object adjacent to the sensor trace to determine proximity of the conductive object.

2. The capacitive sensor system of claim 1, further comprising at least one additional transparent sensor trace resulting in a first plurality of sensor traces oriented in a first dimension, wherein the processor is further configured to detect capacitance changes in the first plurality of sensor traces corresponding to a conductive object adjacent the sensor traces to determine proximity of the conductive object and positioning of the conductive object along the first dimension.

3. The capacitive sensor system of claim 2, further comprising a second plurality of sensor traces oriented in a second dimension, wherein the processor is further configured to detect capacitance changes in the first plurality of sensor traces and the second plurality of sensor traces corresponding to a conductive object adjacent the sensor traces to determine proximity of the conductive object and positioning of the conductive object along the first dimension and the second dimension.

4. The capacitive sensor system of claim 3, wherein the first dimension is substantially perpendicular to the second dimension.

5. The capacitive sensor system of claim 3, further comprising a substantially transparent insulating material separating the first plurality of sensor traces from the second plurality of sensor traces.

1 6. The capacitive sensor system of claim 3, wherein the first plurality of
2 sensor traces and the second plurality of sensor traces are configured to minimize
3 overlap.

1 7. The capacitive sensor system of claim 6, wherein each sensor trace
2 of the first plurality of sensor traces and the second plurality of sensor traces is
3 configured to comprise a series of diamond shapes aligned and connected along a
4 common axis.

1 8. The capacitive sensor system of claim 7, wherein the first plurality of
2 sensor traces and the second plurality of sensor traces are aligned to maximize
3 transparency.

1 9. The capacitive sensor system of claim 3, further comprising a flexible
2 substrate.

1 10. The capacitive sensor system of claim 5, wherein the sensor traces
2 and the insulating material have similar indices of refraction.

1 11. The capacitive sensor system of claim 1, wherein the sensor trace is
2 mounted over an active display.

1 12. The capacitive sensor system of claim 2, wherein the sensor trace is
2 mounted over an active display.

1 13. The capacitive sensor system of claim 3, wherein the sensor trace is
2 mounted over an active display.

1 14. The capacitive sensor system of claim 1, wherein the processor is
2 further configured to recognize gestures.

1 15. The capacitive sensor system of claim 2, wherein the processor is
2 further configured to recognize gestures.

1 16. The capacitive sensor system of claim 3, wherein the processor is
2 further configured to recognize gestures.

1 17. The capacitive sensor system of claim 3, wherein the sensor traces
2 are mounted over a system to read fingerprints.

1 18. The capacitive sensor system of claim 1, further comprising a
2 substantially transparent ground plane to electrically shield the sensor system.

1 19. The capacitive sensor system of claim 2, further comprising a
2 substantially transparent ground plane to electrically shield the sensor system.

1 20. The capacitive sensor system of claim 3, further comprising a
2 substantially transparent ground plane to electrically shield the sensor system.

1 21. The capacitive sensor system of claim 3, wherein the sensor system
2 is mounted over a display device and comprises an object positioning system in
3 which the display device provides additional user interface information.

1 22. The capacitive sensor system of claim 8, wherein the first plurality of
2 sensor traces and the second plurality of sensor traces comprises a sensor array
3 that has substantially uniform transparency.

1 23. The capacitive sensor system of claim 3, wherein the is further
2 configured to detect capacitance changes in the first plurality of sensor traces and
3 the second plurality of sensor traces to determine contact area of a conductive
4 object.

1 24. The capacitive sensor system of claim 2, wherein the sensor traces
2 are mounted over a system to read fingerprints.

1 25. The capacitive sensor system of claim 1, wherein the sensor traces
2 are mounted over a system to read fingerprints.

1 26. The capacitive sensor system of claim 1, wherein the conductive
2 object is a human finger.

1 27. The capacitive sensor system of claim 2, wherein the conductive
2 object is a human finger.

1 28. The capacitive sensor system of claim 3, wherein the conductive
2 object is a human finger.

1 29. The capacitive sensor system of claim 2, further comprising a flexible
2 substrate.

1 30. The capacitive sensor system of claim 1, further comprising a flexible
2 substrate.

1 31. The capacitive sensor system of claim 1, wherein the conductive
2 object is a stylus.

1 32. The capacitive sensor system of claim 2, wherein the conductive
2 object is a stylus.

1 33. The capacitive sensor system of claim 3, wherein the conductive
2 object is a stylus.

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